



Misting-cooling systems have been used in outdoor spaces mainly for aesthetic purposes, and punctual cooling achievement. However, they can be highly effective in outdoor spaces' bioclimatic comfort, in terms of microclimatic control, as an evaporative cooling system.

Recent concerns in increasing bioclimatic standards in public outdoor spaces, along with more sustainable practices, gave origin to reasoning where plastic principles are combined with the study of cooling efficacy, in order to create waterscapes.

The methodology within this paper seeks to combine the reasoning of misting-cooling systems with all the other solutions promoting better conditions in the new spaces – terrain modeling, plant material, pavements, green coverings and even outdoor furniture's location. It is expected that results from this research originate more integrated solutions where formal principles are deeply combined with lower-requirement microclimatic control. This methodology is based on the comparative relation between air temperature and air humidity – the main factors that influence site's cooling mist effect – and the impact other important factors may have – such as wind direction, wind speed, water droplet's size, solar radiation and cast shadows. The reasoning was applied in a case study in Khan Antoun Bey Square, Beirut, Lebanon.

Conclusions demonstrate this method's efficiency, even if significantly punctually reduced in hot-humid summer days. Increasing temperature is followed by humidity's increase, which clearly disturbs system's efficacy; however, thermal and microclimatic comforts are still improved.

This paper seeks to stress misting systems as important tools for the promotion of sustainability in landscape architecture's strategies for better comfort conditions in outdoor spaces.



MISTING-COOLING SYSTEMS FOR MICROCLIMATIC CONTROL IN PUBLIC SPACE

Waterscape, Misting-cooling system, Microclimatic control, Climatic comfort, Outdoor public space

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